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CHINESE AGRICULTURAL RESOURCES AND NATIVE PRODUCTS

Summary: This report summarizes a study by Wu Hua-pao of the agricultural resources of China. It gives data on the Chinese agricultural population and its relation to the present and potential arable area and describes briefly the various agricultural products of the country.

The report is divided into the following parts: (1) population and arable land, (2) agricultural regions, (3) grain production, (4) production of cotton and fiber-yielding plants, (5) special products, (6) fruits and vegetables, (7) animal husbandry, (8) marine products, (9) forestry.

I. POPULATION AND AGRICULTURAL LAND

A. Population

According to the 1950 estimate of the Central People's Government the total population of China is 483,600,000. The geographical distribution of the population is as follows: East China Administrative Area (including Shantung, Kiangsu, Anhwei, Chekiang, Fukien, and Taiwan provinces, and Shanghai and Nanking municipalities) has the greatest population density numbering 140,920,000. Next is the Central-South China Administrative Area (including Honan, Hupeh, Hunan, Kiangsi, Kwangtung, and Kwangsi provinces, and Wuhan and Canton municipalities) which has 136,770,000. The Southwest Administrative Area (including Szechwan, Siliang, Yunnan, and Kweichow provinces and Chungking municipality) has 70,630,000.

The North China Administrative Area (including Hopeh, Shansi, Pingyuan, Chahar, and Suiyuan provinces, and Peiping and Tientsin municipalities) has 67,060,000. The Northeast Administrative Area (including Liaotung, Liaosi,

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Kirin, Heilungkiang, Sungkiang, and Jehol Provinces, and Mukden, Port Arthur, Pairen, Fushun, An-shan, and Pen-ch'i municipalities) has 41,570,000. The Northwest Administrative Area (including Shensi, Kansu, Ningxia, Tsinghai, and Sinkiang provinces, and Sian municipality) has 23,470,000. The Inner Mongolian Autonomous Area has 2,230,000. Tibet has the smallest population [of any comparable area] in the nation, about one million.

According to the estimate of the Central People's Government, about 396,950,000 people in China are engaged in agricultural enterprises. In other words, about 82.7 percent of the population are working on farms (see the first table). Generally speaking, except the Inner Mongolian Autonomous Region, the agricultural population in the provinces north of the Yangtze River comprise a higher percentage of the entire population than in the provinces south of the Yangtze.

Table 1. Total Population and Agricultural Population

<u>Administrative Area</u>	<u>Total Population (10,000)</u>	<u>Agricultural Population (10,000)</u>	<u>Percent of Agricultural Population</u>
North China	6,706	5,437	81.1
Northeast	4,157	3,377	81.2
East China	14,092	12,131	86.1
Northwest	2,347	2,126	90.6
Central-South China	13,677	10,641	77.8
Southwest	7,063	5,735	81.1
Inner Mongolia Autonomous Area	223	160	71.7
Tibet	100	88	88.0
Total	48,365	39,595	82.7

The agricultural labor force may be classified into three categories: (1) male labor force consisting of peasants between the ages of 18 and 55 who do not have serious physical handicaps and are capable of undertaking productive activities; (2) part-time male labor forces consisting of peasants younger than 17 or older than 55 who do not have serious physical handicaps and are capable of undertaking productive activities; and (3) female labor force consisting of peasant women who do not have serious physical handicaps and are capable of undertaking productive activities.

According to the figures of Shantung Province, about 45.5 percent of the entire agricultural population of that province are included in the above-mentioned three categories. A survey in the five provinces of North China revealed that male and female peasants between the ages of 18 and 55 constitute about 45.3 percent of the entire agricultural population in those provinces. This figure is very close to that given for Shantung Province. If we assume that the nation's agricultural labor force constitutes about 45 percent of the entire population, then we have an agricultural labor force of 178,600,000 males and females (both full and part-time) out of the 396,950,000 agricultural population.

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During the last year, Chinese peasants have invented many things in the field of agricultural technology which have shown their creative minds. For instance, a model laborer in Shansi Province named Liu Chü-pao, selected types of melon seeds and rice seeds which can mature a half-month earlier than ordinary seeds. Another model laborer named Yu Ch'ing-shou in Wen-teng Hsien, Shantung Province, selected a type of flat-head wheat for seed that yields about 20 percent more wheat grains than other types. Such examples of the skill of our peasants are numerous.

#### B. Total Land Area

No investigations have been made in the past about the total land area of China. According to estimates made by experts, China had approximately 10 million square kilometers of land, an equivalent of 15 billion shih mou (one shih mou equals 0.1647 acre).

#### C. Arable Land

Of the 15 billion shih mou of land, a little bit less than one tenth, or 1,474,640,000 shih mou, has already been developed as fertile soil. This, of course, does not include forest and pasture lands.

The tillable land is found primarily in the six regional administrative areas. Land in Inner Mongolia and Sinkiang is largely used for raising livestock, and very little tillable land is found there. Of the six administrative areas, East China and Central-South China have the largest areas of tillable land, with each having more than 310 million shih mou. North China has more than 250 million shih mou, the Northeast about 220 million shih mou, and the Southwest 200 million shih mou. The Northwest has only about 130 million shih mou (See table 2).

We call the percentage comparison between tillable land and the total size of land "percentage of cultivation." Taking the whole country into consideration, we find that the percentage of cultivation is a little bit less than 10 percent. Considering the matter by administrative areas we find that East China has the highest percentage of cultivation, which is 32 percent. North China has 19 percent, Central-South China 17 percent, Northeast 11 percent, Southwest 9 percent, and Northwest only 2.7 percent. This is the present condition of tillable land in China.

If we consider the possibility of reclamation in the future, the Northeast and the Northwest, though now having a lower percentage of cultivation, have the greatest possibility of expanding their area of tillable land. Although at present the percentage of cultivation is also low in the Southwest, the possibility of reclamation is somewhat less there than in the Northeast and Northwest because of its mountainous nature.

Table 2. Total Land Area and Tillable Land

Administrative Area	Total Area of Land (one sq km)	Area of Tillable Land (10,000 shih mou)	Percentage of Cultivation
North China	865,241	25,244	19.5
Northeast	1,285,069	22,561	11.7
East China	659,876	31,982	32.3
Northwest	3,248,142	13,262	2.7

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<u>Administrative Area</u>	<u>Total Area of Land (one sq km)</u>	<u>Area of Tillable Land (10,000 shih mou)</u>	<u>Percentage of Cultivation</u>
Central-South China	1,191,678	31,773	17.7
Southwest	1,451,401	20,483	9.4
Inner Mongolia Autonomous Area	600,000	2,159	2.4
Tibet	904,999	--	--
Total	10,206,406	147,464	9.6

We have already mentioned that tillable land in China amounts to 1,474,640,000 shih mou. But since Chinese peasants are industrious, they usually grow two or three crops on the same fields each year. We call the ratio between the number of crops and the area of tillable land the percentage of multiple-crops. The percentage of multiple-crops varies from one province to another. Kiangsu has the largest percentage which is 164 percent. This is, in Kiangsu each 100 mou of tillable land can produce as much as 164 mou of land if the land yielded only one crop annually. The percentage for Kwangtung is 144 percent, and for North China is 120 percent. However, because of climatic restrictions, the percentage of multiple crops in Northeast China, Suiyuan, and Ningxia is only about 95 percent.

Taking the nation as a whole, the average percentage of multiple-crops is approximately 125 percent. That is, while tillable land is about 1,470,000,000 shih mou, "harvest land" is actually equal to the total acreage plus one fourth. In other words, we have the equivalent of 1,840,000,000 mou of land on which to grow plants annually. The multiple-crop system greatly increases our agricultural production.

Although East China and Central-South China have the largest areas of tillable land, the average amount of land tilled by each peasant in these two areas is the smallest because of the density of population. The average area for each peasant in East China is only 2.64 mou. It is 3 mou for those in Central-South China, 3.57 mou in the Southwest, 4.64 mou in North China, 6.24 mou in the Northwest, and 6.68 mou in the Northeast. Each peasant in the Inner Mongolia Autonomous Area has the largest area of tillable land, which is 13.5 mou.

Generally speaking, because North China has a large area of tillable land and a small population, individual peasants in that area have more land to till than those in South China. But South China has a large percentage of multiple-crops and each mou of land also yields more products. Taking the nation as a whole, we find that each peasant has an average 3.72 mou of land to till. If we assume that each peasant household consists of five persons, then each household has only 19 mou of tillable land.

As stated above only about one tenth of the land in China is now tilled. If some of the remaining nine tenths can be reclaimed, then each peasant household's tillable land could be increased. However, the quality of such uncultivated land is somewhat inferior to that of the land now cultivated. The uncultivated land is situated either in border regions, or has unfavorable climate and soil. But if the Chinese can learn the Soviet Union's experiences in reclaiming large areas of barren land, they will be able to convert a great portion of China's uncultivated land into productive soil.

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The best uncultivated land in China is situated in the Northeast. The soil of those uncultivated lands is fertile and means of communication are ample. Most of the tillable but uncultivated land is found in the T'ao-erh River Valley, the upper Yalu River Valley, the left bank of the Tumen River, the right bank of the Amur River, and the left bank of the Sungari River. The total area of such land is about 300 million shih mou.

In the Northwest, there is the largest single area of uncultivated land in China which is more than 400 million shih mou. But the productivity of this land will probably not be high because of cold weather, high altitude, and lack of irrigation. Most of the tillable but uncultivated land is found in regions around the Huang-lung Shan, T'ai-pai Shan in Shensi Province; the Ho-hsi region in Kansu Province, and Hsi-ning, Tu-lan, and Huang-yuan hsien in Tsinghai. Uncultivated lands are also found in the Ch'ien-t'ao, Hou-t'ao, and San-hu-wan regions of Suiyuan Province. The Chang-lu area in Hopeh Province is also a noted reclamation area.

In the Southwest, uncultivated lands are found in the regions of Lei-po, Ma-pien, Ping-shan, O-mei, Yu-yang, Hsiu-shan, Chien-chiang, P'eng Hsien, Sung-jen, Li Hsien, Mou-kung, and Mao Hsien in Szechwan Province and the regions around Ning-shu [Ning-nan] and K'ang-ting of Sikang Province.

Large areas of uncultivated lands in Central-South China are found in the regions of Chien-li, Shih-shou, and Chia-shui hsien [Chin-shui Hsien is not listed in available lists] of Hupeh Province; the so-called Yellow River Flood Region and the Fu-niu Shan area of Honan Province, the regions of Ch'ing-hsien, Yuan-chiang, Chih-chiang, and Po-pu-lan Shan in Hunan Province, the region of Kan-nan in Kiangsi Province, and the Lai-chou Peninsula of Kwangtung Province.

In East China, uncultivated lands are found in the alkali soil areas in the Hwai Ho Valley in North Kiangsu Province, the region of Hao-ch'iu and Tung Hu and Hsi Hu in Anhwei Province, the regions of Pin Hsien, P'u-t'ai, Li-ching, and Chan-kwa hsien in Shantung Province, and the region of Pu-t'ien of Fukien Province.

## II. AGRICULTURAL REGIONS

Since China is so vast, topographical conditions differ from place to place. For this reason, agricultural products are different in the various regions. Agricultural enterprises in China may be divided into the following six regions:

### A. North China Wheat and Miscellaneous Grain Region

This region includes the provinces drained by the Yellow River. In this region lies the greatest plain of the nation. The plain is low on the east side and gradually becomes higher toward the west. On the border of Tsinghai, the elevation becomes about 3,000 meters, and the land is therefore unsuitable for planting. In winter, the weather is dry and the rainfall scanty. In summer, the rainfall usually causes floods. The soil contains much calcium and is therefore very fertile, but it lacks organic elements and nitrogen. The principal agricultural products of this region include wheat, millet, kaoliang, and corn. The region also produces a considerable amount of cotton, and some soybeans, peanuts, and sweet potatoes.

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### C. Central China Rice and Wheat Region

This region stretches from Szachwan along the Yangtze River to the provinces of Kiangsu, Chekiang, and Fukien. The Yangtze River, the lakes, and the Grand Canal provide this region with water for irrigation and transport facilities. The temperature is mild, rainfall is ample, and the soil is fertile. It is ideal for farming. As a result, more land is under cultivation in this region than anywhere else. Some mountain slopes have been terraced. The most important agricultural product is rice. Because two crops may be planted on most of the land, the winter crop consists mostly of wheat. Cotton production is also high. Other products include barley, rape, broad beans, sesame, and corn. In addition, silk produced in the provinces of Kiangsu and Chekiang also enjoys world-wide reputation. Silk production is, in fact, vital to the rural economy in the two provinces. This region also produces 90 percent of the nation's tea crop.

### D. South China Rice Region

This region includes a large part of Kwangtung and Kwangsi provinces and a small part of Kiangsi and Fukien provinces. The special geographical features of this region are small steep hills and the lack of level plains. Because of this, only 12 percent of the land is under cultivation, most of it being terraced fields. However, the weather is mild throughout the year. Rainfall is also plentiful and distributed evenly over the 12 months. The red soil requires, however, a larger amount of fertilizers annually than other soils. Two crops of rice may be grown each year. Large amounts of sugar cane and sweet potatoes are also planted yearly. This region is also famous for its fruit production: bananas, lichee, loose-rind oranges, and ordinary oranges.

### E. Northeast Wheat and Soybean Region

Except for Jehol, which is mountainous with an altitude of more than 2,000 meters above sea level and which is therefore more suitable for animal husbandry, the five other provinces of the Northeast are exceptionally suitable for farming. Their elevation is generally below 500 meters, and vast plains are found in the valleys of the Nun Ch'iang, the Sungari River, and the Liao Ho. Although this region lies near the frigid zone, it has plenty of rainfall, especially in the spring and summer seasons. The alluvial soils in the basins of the Liao Ho and the Sungari River are particularly fertile as they have not been cultivated for very long. In view of the fact that the vast plains have not been densely populated, agriculture has a bright future in this region. The most important agricultural products include wheat and soybeans. In addition, the Northeast also produces a large amount of miscellaneous grains including kaoliang, and millet. Sizeable crops of hemp, tobacco, silk, and fruits are also grown.

### F. Southwest Rice Region

This region extends through Yunnan and Kweichow provinces and the western part of Kwangsi. Elevation of the region is high, ranging from 200 to 3,000 meters. Hills are found everywhere, but are mostly covered with soil. Valleys are deep and narrow. The slopes of the mountains forming the valleys are terraced. The yellow soil is acid, but poor in fertility. However, thanks to the warm weather and plentiful rainfall throughout the year, agriculture is prosperous in this region. The most important agricultural product is rice. Wheat, broad beans, and corn are also grown.

### G. Inner Mongolian and Tibetan Grazing Regions

The elevation of Inner Mongolia is about 2,000 meters above the sea level, whereas that of Tibet is 3,000 meters or higher. These plateaus and steppes are vast but scarcely populated. Rainfall is scanty on the plateaus on Inner Mongolia. The temperature is low and the air is dry on the mountains of Tibet,

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with perpetual snow on the peaks. Soil on the Tibetan plateaus is unfertile and alkaline. Sand is found almost everywhere on the plateaus of both Inner Mongolia and Tibet. These plateaus are therefore not suitable for planting but are ideal for animal husbandry. Herdsmen are divided into two classes -- settled or nomadic. Settled herdsmen have permanent living quarters and farm land. They plant some fast-growing plants on their farms for food supplies and feedstuffs to be used in winter. In Inner Mongolia, sheep are the most important, with horses and cattle next in importance. On the Tibetan plateaus, yaks are the principal livestock, with cattle and horses next in importance.

### III. GRAIN PRODUCTION

For convenience of presentation, China's agricultural products may be grouped into seven categories: (1) grains; (2) cotton and fibre-yielding plants; (3) special products such as silk, tobacco, tea, and sugar; (4) garden crops; (5) animal husbandry; (6) marine products; and (7) forestry.

China's principal crops number about 20. They may be divided into six groups, namely, rice, wheat, miscellaneous grains, beans, tubers, and oil-yielding plants.

#### A. Rice

Rice constitutes about 27 percent of the entire amount of grains consumed by the Chinese people as food. China's rice production tops that of any other country in the world, with an annual yield of approximately 100 billion catties or about 35 percent of the world's production.

The provinces which produce the largest amounts of rice are Kiangsu, Szechwan, Hunan, Kwangtung, Chekiang, and Kiangsi, with an annual production of about 10 billion catties each. The provinces which produce the next largest amounts are Hupeh, Anhwei, Kwangsi, Fukien, Yunnan, Kweichow, and Taiwan, with an annual production of about 5 billion catties each. Rice-producing regions are, however, not limited to the above provinces. Hopeh, Shansi (North China), Liaotung, Sungkiang (Northeast); Shensi, Ningxia (Northwest); and Sikang (Southwest) also produce rice. The amount of rice produced in the Northeast is increasing year by year.

Rice requires from 3 to 6 months to mature. Varieties which mature in a short time are called "early rice," and varieties which take longer are called "late rice." Between the early and late rice, there is the so-called "intermediary rice." Those varieties which have small sharp kernels and are not sticky are called hsien tao (common rice). Bulky and sticky rice are called keng tao (another kind of common rice as distinguished from the glutinous rice). Another kind of rice with a lustrous white color and sticky consistency is called ju tao (glutinous rice). Usually ju tao is used to make dumplings, pa-pao-fan, and cakes. Kwangtung, Kiangsu, Anhwei, and Hupeh provinces produce glutinous rice.

There is also the so-called scented or fragrant rice. This kind of rice is particularly fine for making porridge. The scented rice produced in Lo-fu, Kwangtung Province, is of the best quality, although the scented rice produced in Wu-hsieh, Kiang-yin, Kiang-ning (Kiangsu Province) and Ch'u-hsieh (Anhwei Province) is also famous.

Rice grown on dry land is called lu tao (upland rice). Lu tao requires plenty of rain. It is grown in Kwangtung, Kwangsi, and Yunnan provinces. Because such rice is better able to endure drought, it may be planted on mountain land.

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The principal rice markets are in Shanghai, Wu-hu, Wu-hsi, Ch'ang-sha, and Nan-ch'ang. However, Shanghai is only a consumers market.

#### B. Wheat

Wheat constitutes about 21 percent of the grains used by Chinese as food. Wheat is used particularly by people in the north. In China, wheat is usually planted late in autumn and harvested early in summer, and is called winter wheat. The wheat planted in the spring and harvested in the fall is called spring wheat. Spring wheat is grown in the provinces of Kirin, Heilungkiang, Jehol, and Sui-yuan, where the weather is cold.

In Yunnan, Kweichow, and Szechwan provinces, winter wheat is harvested in April. In Kiangsi, Chekiang, and Hupeh provinces, it is harvested in May. In the Yellow River region, it is harvested in June. Spring wheat is not harvested until July or August.

The principal wheat-producing places are Honan, Shantung, Szechwan, and Kiangsu provinces, with an annual production of 5 billion catties each. The next important wheat-producing regions include Hupeh, Shensi, Anhwei, Hopeh, Chekiang, and Shansi. The basins of the Sungari River and the Nun Chiang, and the area west of the Liao Ho in the Northeast are also noted wheat-producing regions. The nation's total wheat production is around 43 billion catties annually. North China wheat contains the most protein.

Wheat flour is used not only in foods requiring flour, but also in making wine. Wheat bran is a very good food and in the past, a great deal of it was exported to Japan. Wheat stalks may be also used as a foodstuff and in making alcohol. Sometimes, the peasants use wheat stalks in building their houses. In Yeh-hsien, Ping-tu, and Ch'ang-I hsiens of Shantung Province, farmers use wheat stalks to make straw-braid which is, in turn, used in making hats. Straw braid is also exported.

The wheat flour and textile industries are China's two most important light industries. At present, flour mills are concentrated in the areas surrounding Mukden, Harbin, Shanghai, Wu-hsi, Tsinan, Chungking, Tientsin, Wuhan, Tsingtao, Sian, and Tai-yuan. The flour mills have about 900 flour-milling machines, with a monthly output of approximately 2,500,000 bags. Because there are about 160 million people eating wheat flour, these mechanized flour mills are obviously unable to meet all the demands.

#### C. Miscellaneous Grains

The principal miscellaneous grains of China are millet, kaoliang, corn, and barley. The total annual harvest of these four is approximately 75 billion catties.

North China and the Northeast produce a great deal of millet and kaoliang, which many people prefer to wheat. The nation's total annual output is approximately 20 billion catties of each. Millet is produced primarily in Hopeh, Shantung, Shensi, and Honan provinces, and in the Northeast. Kaoliang is grown mainly in Shantung, Jehol, Hopeh, Szechwan, Anhwei, and in the Northeast. The annual harvest of barley is about 13 billion catties, with Szechwan, Hupeh, Kiangsu, Honan, Chekiang, and Anhwei as the principal producing areas. The annual harvest of corn is approximately 22 billion catties, with the producing region stretching in a belt from the Northeast to Southwest China. However, the Northeast and the provinces of Hopeh, Shantung, Honan, Hupeh, Szechwan, Kweichow, and Yunnan produce the largest amounts. Because the temperature is too low in the summer season and the rainfall is scanty, very little corn is planted in the Northwest.

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D. Peas

About 50 percent of China's soybeans are used as food; the other 50 percent for industrial purposes. Annually, China produces approximately 20 billion catties of soybeans, more than 80 percent of the world's harvest.

Distribution of soybean culture in China is wide. Where the temperature is warm, soybeans should be planted in clay soil, but in regions with low temperature, they should be planted in sandy soil. Soybeans do not grow well in soil having too much humus.

The plains of the Liao Ho and Sungari River valleys in the Northeast are the best soybean-producing areas of China and grow about 40 percent of the Chinese soybeans. Other good soybean-producing areas include Shantung, Honan, Hopeh, Pingyuan, and Anhwei; these provinces are situated in the lower reaches of the Yellow River and the Hwai Ho. Next in importance are Szechwan, Kiangsu, and Hupeh in the Yangtze Valley, as well as Yunnan, Kweichow, Kwangsi, and Kwangtung in the south. However, soybeans produced in the Northeast have the best quality. Their size is uniform. Their texture is hard. They have a bright color with dry, clean skins. China exports a great deal of soybeans and soybean products annually.

China leads the world in producing green peas and broad beans. The annual harvest of these two kinds of legumes amounts to more than 6 billion catties of each. The annual harvest of green peas is about 70 percent of world's total production.

Because green peas endure low temperatures better than broad beans, North China grows more green peas, whereas Central China grows more broad beans. In South China, only a limited quantity of such beans are planted because their planting season conflicts with that of rice. Szechwan produces the largest amounts of green peas and broad beans. Honan, Hopeh, Shantung, Shansi, and Shensi produce the next largest amounts of green peas. Considerable quantities of green peas are also produced in Hupeh, Kiangsu, Anhwei, Kwangsi, Yunnan, Kweichow, and Tsinghai. Next to Szechwan the broad bean producing areas are the provinces in the Yangtze River Valley such as Hupeh, Hunan, Kiangsu, Chekiang, Yunnan, Kweichow, Kiangsi, and Anhwei.

Green beans and red beans are planted all over the country. However, because they are more suitable for moist land, the regions in the lower Yangtze River Valley produce more of such products than other regions.

E. Tubers

Sweet potatoes require warm weather and moist air while growing. Loose soil is also ideal for their development. The provinces in southern China produce the best sweet potatoes. Provinces in the Yangtze River Valley produce the next best sweet potatoes. Sweet potatoes produced in the northern provinces are of low quality. Annually, the whole country produces about 50 billion catties. Honan, Kwangtung, Szechwan, and Hopeh produce the largest amounts. Next in order are Shantung, Fukien, Taiwan, Chekiang, and Hunan. Other provinces such as Anhwei, Kiangsi, Hupeh, and Kwangsi also produce considerable amounts. On an average, one mou produces 1,500 catties of sweet potatoes.

Irish potatoes are most suitable for regions with low temperatures, moist air, and loose soil. Places not suitable for wheat are ideal for growing Irish potatoes. At present, China's annual production is approximately 4 billion catties. Of this amount, Shansi produces one billion catties. Chahar produces 800 million catties and Yunnan and Hupeh produce 400 million catties each. Next

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in order are Kwangtung, Kansu, Shantung, Honan, Northeast China, and the vicinity of Shanghai and Tientsin. Although the Irish potato harvest per mou of land is not as great as for sweet potatoes, it is still considerable, being approximately 700 catties. Irish potatoes can be planted from January through June according to climate.

Taros grow best in warm temperatures and moist air. Consequently, more taros are produced in the years of hot weather and plenty of rainfall. There are two kinds of taros. One grows on dry land is therefore called "dry taro." Another grows only on land that has been covered with water, and it is therefore called "water taro." The annual taro production of China is about 2.4 billion catties, with Szechwan, Kwangtung, Kwangsi, Chekiang, and Kiangsu producing the largest amounts. Taros produced in Yu-yao-hsien, Chekiang Province, are most famous because of their round appearance, pasty meat, and delicious flavor.

#### F. Oil-Yielding Plants

Although the above-mentioned grains and vegetables can be used for many purposes, they are primarily used as food. Several other plants such as sesame and peanuts are used as food only after they have been made into oil. As for rape, it is exclusively used in making oil.

Rape is planted in North China and in Kwangsi and Kweichow in the south. The predominant rape-producing area is in the Yangtze River Valley. The nation's annual production is 7.5 billion catties. Szechwan and Kwangsi each produce about 15 percent of the total. Next in order are Hunan, Anhwei, Chekiang, and Kiangsu. Rape is also grown in Yunnan, Kweichow, Kwangsi, Honan, Hopeh, Shansi, and Kansu. Each 100 catties of rape yields 33 catties of oil. The nation's annual rapeseed oil output is 2.4 billion catties, constituting the principal food oil. Rapeseed oil may also be used in refining steel. In rural areas, rapeseed oil is used as lamp oil. A by-product of rapeseed oil manufacture is rapeseed cake which may be used as stock feed or as fertilizer. In the past, a great deal of rapeseed oil and cake were exported to Japan annually.

Peanuts are a special product of China. China and India compete for the position of the world's largest peanut producing country. Annually, each country produces about one third of the world's total. Peanuts prefer warm weather, strong sunshine, and semifertile soil. China's annual peanut production is approximately 4.5 billion catties. Shantung, Hopeh, and Hupeh produce half of the national crop. Next in order are Szechwan, Kwangsi, Kwangtung, Fukien, and Honan. Peanuts produced in Chekiang and the Nanking area with red, small kernels contain more oil and are therefore very famous.

A great part of the nation's peanuts are used in making oil. Peanut oil, soybean oil, and rapeseed oil are the three important food oils of China. Peanut oil is used as substitute for olive oil or in making soaps. Peanut cake is used as stock feed or fertilizer. Considerable amounts of Chinese peanuts are exported to Germany, the Netherlands, France, and Italy through the trading ports of Tientsin, Tsinan, Tsingtao, and Hankow.

The nation's annual yield of sesameseed oil is about 1.3 billion catties. Honan produces the largest amount, approximately 35 percent of the national production. Hupeh produces about 16 percent. Other important producing areas include Szechwan, Anhwei, Hopeh, Kiangsu, Kwangsi, and Shantung. Yellow and white sesame are better than black since they yield more oil. Considerable amounts of sesame and sesameseed oil are exported annually. They are primarily used in making lubricating oil and soaps.

China also produces several other vegetable oils which are not, however, used as food. They include:

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Castor oil used medically and industrially in making soaps, candles, and lubricating oil for aircraft and trains. Castor oil is produced in Hopeh, Shantung, Shansi, Honan, Suiyuan, Shensi, and Liaosi.

Linseed oil is produced in Yuan-kiang, Ch'ang-ning, and Liu-yang hsiens in Hunan Province.

China leads the world in peppermint oil production. In 1950, China produced 20,000 piculs [one picul equals 133 pounds] of such oil. More than half of the peppermint oil produced is exported. Kiangsu and Kwangsi are the principal producing areas. It is also produced in Hunan, Chekiang, Kwangtung, Fukien, and Szechwan. The best peppermint oil is produced in the regions surrounding Nant'ung and Suchow in Kiangsu Province, Ning-po in Chekiang, and Chi-an in Kwangsi.

#### IV. PRODUCTION OF COTTON AND FIBRE-YIELDING PLANTS

##### A. Cotton

In the years 1933 - 1937, the annual cotton harvest exceeded 10 million piculs. After the liberation, because of nationwide flood, the 1949 harvest was only 8,800,000 piculs. In 1950, the harvest increased to 14,200,000 piculs.

China has four cotton-growing regions, two principal ones, and two secondary ones.

The chief cotton-growing region lies in the Yellow River Valley including Hopeh, Pingyuan, Shantung, Shansi, and parts of Shensi, Honan, and Anhwei. One crop is the rule in this region.

The second cotton-growing region lies in the Yangtze River Valley including Chekiang, Kiangsu, Kwangsi, Hopeh, Hunan, Szechwan, and parts of Anhwei, Shensi, Honan, and Fukien. In this region, two crops are usually planted. Paddy rice, the principal summer crop, requires flooded land; cotton is planted on dry land. Because improved strains of cotton require a longer time to mature, planters usually prefer the types which mature faster so as to make room for the winter crop. As a result, the quality of cotton is not as good as that produced in northern China. Such cotton can be used only to make rough cotton yarns. However, because prices of improved strains of cotton are usually 30 percent higher than those of the ordinary cotton, more farmers are beginning to plant the improved strains, particularly in Chekiang and Kiangsu.

The third cotton-producing region lies in the Liao Ho Valley covering several dozens of hsien around Shan-hai-kuan, Mukden, and Dairen. This region is rather small compared to the others. At present, about 3 million mou of land in this region are planted in cotton. In view of the fact that the temperature is low in this region, careful study as to whether cotton culture should be expanded is necessary.

The fourth cotton-growing region is in southern China including Taiwan, Kwangtung, Kwangsi, Yunnan, Kweichow, and part of Sikang. Since this region is mountainous and rainy, its cotton production is not significant. However, since it has high temperature all year around this region is suitable to grow the perennial known as tree-cotton. In fact, Yunnan has been successful in growing tree-cotton. It is believed that there is great possibility for its future development. This type of cotton has long fibers and can be used in making fine and delicate cotton yarn.

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B. Hemp

China produces a great volume of fiber-yielding plants. In the past, the annual yield was approximately 10 million piculs. During recent years, the amount has declined to an annual production of 8 million piculs. Although China produces a considerable amount of fiber-yielding plants, plants such as Indian mallow and kenafe or ambari hemp, which can be used in making sacks, constitute only about one fourth of the total output. At present, there is a shortage of hemp sacks as the goods exchange between rural and urban areas continues to increase day by day. To provide enough sacks, China must expand the planting of these two types of fiber-yielding plants in the future. We export a great amount of ramie and hemp annually. A great part of the exported products are shipped to Korea. Meanwhile, we also import a considerable amount of Indian mallow sacks from India and other places.

China's principal ramie producing regions include Hupeh, Hunan, Kiangsi, and Szechwan provinces. Next in order are Kwangtung, Kwangsi, Fukien, Kiangsu, Honan, and Anhwei provinces. The so-called Chinese linens are produced in P'u-ch'i Hsien, Hupeh, Wan-ts'ai Hsien, Kiangsi, and Liu-yang Hsien, Hunan.

Hemp is primarily produced in the areas north of the Yellow River, principally in Honan, Hopeh, Shantung, Shansi, and in the Northeast. It is also produced in Szechwan, Kweichow, Hupeh, Chekiang, Kwangtung, and Fukien.

Jute is the principal material used in making sacks in China. The annual production of jute is about 1,200,000 piculs. The principal jute-producing areas include the so-called rice regions south of the Yangtze River such as the Ch'ien-t'ang Chiang Valley in Chekiang Province, the Yangtze River Valley in Kiangsu Province, and Peng-fou and Feng-yang hsiens in Anhwei Province. Jute is also produced in Ch'ao-yang and Chieh-yang hsiens in Kwangtung, Hua-an and Chang-ping hsiens in Fukien, Ch'i-an and T'ai-ho hsiens in Kiangsi, and Jung-ch'ang and Lung-ch'ang hsiens in Szechwan. The fibers of kenafe are coarser than jute but are more durable. However, only a very small quantity of kenafe is produced in China. Since 1935, efforts have been made to extend its culture in the Northeast, in North China, and in Shantung and Chekiang. At present, the annual production is about 240,000 piculs, of which Taiwan produces the most.

Indian mallow is also called green hemp or white hemp. Its fibers are coarse and still but last well even when wet. It is widely planted in the provinces north of the Yellow River such as Shantung, Hopeh, the northern parts of Anhwei and Kiangsu, and in Liaotung, Liaosi, and Kirin. The annual production is approximately 800,000 piculs.

## V. SPECIAL PRODUCTS

A. Silk

Mulberry plantings and silkworm growing are limited by climate and soil. Mulberry trees prefer warm weather, proper volume of rainfall, alluvial soil along river banks, but not a high degree of humidity. Silkworms prefer a mild climate. They will not grow well if the temperature is low, and will succumb to infectious diseases if the temperature is too high. For these reasons, Chekiang and Kiangsu provinces are the most suitable places for growing silkworms.

There are two major types of silkworms -- domestic and wild. The domestic silkworms reproduce twice each year, once in the spring and again in the autumn. Domestic silkworms are reared primarily in Kiangsu, Chekiang, Kwangtung, and

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Szechwan, with the T'ai Hu region, the Ch'engt'u plain, and Pearl River delta producing the largest amounts of silk. They are also widely bred in Hupeh, Anhwei, Shantung, and Honan.

The other type, the *Antheraea Perni* eat leaves of *myroxyton racemosum* and *quercus chinensis*. The Chinese call them tso or wild silkworms. Wild silkworms reproduce in the spring and summer seasons. Their silk is coarser than that produced by domestic silkworms. However, the silk produced by the wild silkworms lasts longer and can be used for making clothes, window curtains, and parachutes. The principal wild silkworm producing areas are in Liaotung, Kirin, and the eastern part of Shantung. Another kind of silkworm by the name of chang silkworm [or camphor silkworm] is reared in Kwangsi, Kwangtung, and Taiwan. They are bred on saffron or sweet gum trees. Silk produced by such silkworms are best suitable for making fishing lines.

#### B. Tea

At present, 19 provinces and more than 500 hsien produce tea. The farmers planting tea number more than 2,500,000. China produces about 45 percent of the world's total tea. However, most Chinese farmers consider tea culture as a subsidiary occupation; very few consider it as their principal crop.

The five principle types of Chinese tea are classified primarily according to the methods by which they are processed after being picked.

##### 1. Black Tea

Black tea is made by allowing the leaves to ferment before drying. Black-tea-producing areas include Ch'i-men, Anhwei, Fou-liang, Kiangsi; Sh'ung-wan, Fukien; Fo-hai, Yunnan; and Wen-chou, Chekiang.

##### 2. Green Tea

Green tea is made by drying the leaves immediately after picking. Well-known Chinese green tea is produced in T'un-sh'i, Anhwei, called Mei-chu; in H'ing-shui, Chekiang, called chu; in Hsi-hu, Szechow, called lung-ching; and in Liu-an, Anhwei, called kua-p'ien.

##### 3. Wu-lung Tea

Wu-lung tea is made by partially fermenting, then drying the leaves. Well-known brands are T'ieh-kuan-yin and Yen produced in Fukien, and Wu-lung produced in Taiwan.

##### 4. Fragrant Tea

Fragrant tea is made from green tea scented with fragrant flowers. Well-known brands include the Tai-tai Flower tea of Suchow, the White Jasmine Flower tea of Foochow, and the Yu-lan Flower tea of Ch'eng-tu.

##### 5. Brick Tea

Brick tea is made by pressing either green tea or black tea. Most brick tea is produced in Hunan and Fukien. The tea produced in P'u-erh, Yunnan; the T'o tea in Szechwan and the Pa-pa tea in Kwangsi also belong to the same category, although they are not in brick form. These teas are pressed into the forms of bowl, ball, or mallet.

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China's principal tea-producing areas are in Anhwei, Chekiang, Fukien, Taiwan, Kiangsi, Hupeh, and Hunan. Next in order are Kwangtung, Kwangsi, Kwangsu, Szechwan, Yunnan, Kweichow, and Sikang. At present, the whole nation produces each year approximately one million piculs of green tea, 200,000 piculs of black tea, 400,000 piculs of brick tea, and 300,000 piculs of other types of tea. The total amount is 1,900,000 piculs. Of this, East China produces about 50 percent, and Central China about 40 percent.

Since tea is a famous Chinese export product, exports will increase as the barter trade agreements are signed.

#### C. Tobacco

Tobacco culture, introduced in China in 1575, has become widespread. Twenty-six provinces raise tobacco, including Heilungkiang in the north, Kansu in the west, Kwangsi in the south, and Taiwan in the east. Due to differences in procedures of production and smoking, there are many types of tobacco in China, including shui-yen, tobacco cut for the water pipe; han-yen, tobacco cut for the ordinary pipe; cigarettes; cigars; and snuffs. The well-known products are shui-yen of Lanchow, P'i-ssu-yen of Yung-ting, Fukien; han-yen of Hangchow; cured tobacco suitable for making cigarettes, of Hsu-ch'ang, Honan; and cigars of Chin-t'ang, Szechwan. Annually, the whole nation produces about 13 million piculs of all kinds of tobacco. China, the US, and India are the three major tobacco-producing countries in the world, with each producing about one fifth of the entire output of the world.

The following types of tobacco are produced:

#### 1. Yellow Flower Tobacco

Yellow flower tobacco has small but thick leaves. It has a high nicotine content and a strong flavor. The plant can endure low temperatures. The so-called shui-yen produced in Lan-chow, Kansu, and han-yen produced in Ch'i-ch'i-ha-erh, belong to this category. This type of tobacco is planted mostly in areas having cold weather.

#### 2. K'ao-yen, or Cured Tobacco

The principal producing areas for this type of tobacco are Honan, Shantung, Anhwei, Kwangtung, Taiwan, Szechwan, Yunnan, Kweichow, and Shensi. The four last mentioned provinces started to plant k'ao-yen only in the last 10 years. Honan is the most important tobacco producing area in China. The producing areas in Honan are concentrated in some ten hsien around Hsiang-ch'eng, Hsu-ch'ang, Chia-hsien, and Nan-yang. Shantung also produces a considerable amount of cured tobacco, but the tobacco has a strong flavor which must be mitigated in tobacco factories before use.

The principal producing areas in Shantung are in regions along the Tsingtao-Tientsin Railway such as Wei-hsien, Lin-tzu, and Meng-tu. Cured tobacco is also produced in Feng-yang, Anhwei; Nan-hsiung, Kwangtung; Tai-pei, Taiwan; P'i-hsien, Szechwan; Kun-ming, Yunnan; Kwei-ting, of Kweichow; and Feng-hsiang, of Shensi. K'un-ming produces the best kind both in color and flavor. It is believed that K'un-ming has the greatest potentiality for developing the culture of cured tobacco.

#### 3. Sun-Dried Tobacco

Sun-dried tobacco, generally called t'u-yen (country tobacco), is widely planted in China. Chekiang, Kwangsi, Hunan, Hupeh, Anhwei, Szechwan, Fukien, Kwangtung, and Kwangsi produce it with different flavors. Because of the

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differences in flavor, the sun-dried tobacco has different uses. For instance, that produced in Hsiao-shan, Chekiang, is used as pipe tobacco. That produced in Hsin-tu, Szechwan, is used to make cigars. That produced in Kuang-feng, Kwangsi, is exported to Germany and Egypt because of its strong and fragrant aroma. That produced in Liu-chou, Kwangsi, is used to make p'i-ssu-yen because of its fine yellow color.

#### D. Sugar

The principal sugar-cane-producing areas include Swatow, Ch'ao-chou, and Hui-chou in Kwangtung; Lung-ch'i and Hsien-yu, in Fukien; and Nei-kiang and Tzu-yang, in Szechwan. Sugar cane is also produced in Hunan, Chekiang, Kwangsi, Yunnan, and Anhwei. Annually, the nation, as a whole, produces about 50 million shih piculs (one shih picul equals 110.23 pounds). Taiwan is a world important sugar-producing area with T'ai-nan and T'ai-chung as the largest producers.

There are many kinds of sugar cane produced in China. According to color, there are purple sugar cane, green sugar cane, yellow sugar cane, and white sugar cane. People usually use yellow sugar cane to make sugar. Two kinds of yellow sugar cane commonly called chin-shan sugar cane and chu (bamboo) sugar cane are particularly preferred by planters because they reach maturity faster and yield more sugar. Green and white sugar cane stalks are weak and the sugar produced is strong in flavor. Purple sugar cane plants are stiff and contain a very small amount of sugar. They are suitable for feeding animals.

Sugar beets are not widely produced in China. About 4 million piculs annually are produced in the Northeast. Tsinghai also produces a small amount. However, provinces in northern China such as Suiyuan, Shansi, Hopeh, and Shantung have suitable natural conditions for beet culture.

### VI. FRUITS AND VEGETABLES

#### A. Fruits

China may be divided into three fruit-producing areas, namely, the northern, the central, and the southern. The northern area lies north of the Huai Ho including the Northeast Administrative Area and Hopeh, Pingyuan, Shansi, Shensi, Kansu, Sinkiang, and Shantung provinces. These provinces mainly grow deciduous fruit trees or shrubs such as apples, pears, grapes, peaches, plums, cherries, persimmons, dates, walnuts, the hill haws, apricots, and chestnuts.

The central area lies north of the Ch'ien-t'ang Ho and south of the Huai Ho covering all of the provinces of Kiangsu, Anhwei, Honan, and Hupeh and the northern parts of Chekiang, Kiangsi, Hunan, and Szechwan provinces. These provinces not only have deciduous fruit trees and shrubs, but also evergreen fruit trees. Their principal products are pears, peaches, plums, cherries, grapes, persimmons, dates, chestnuts, pomegranates, loquats, carambolas, and Mandarin oranges.

The southern area includes the provinces of Fukien, Taiwan, Kwangtung, Kwangsi, Yunnan, Kweichow, and the southern parts of Chekiang, Kiangsi, Hunan, and Szechwan. Evergreen fruit trees such as Mandarin oranges, loquats, lichees, longans, persimmons, bananas, Chinese olives, and pineapples grow in this area.

Apples, pears, and oranges, the three most important Chinese fruits, are discussed below:

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## 1. Apples

Apples are produced in the provinces of Hopeh, Shantung, Shansi, Liaotung, Liaosi, and the southern part of Chahar. Recently, quantities of apples are being produced in Sian, Shensi, and in Kuldja, Sinkiang. Chefoo, Wei-hai-wei, Tsing-tao, and Tsi-nan in Shantung Province, Ch'ang-li and Ch'ang-p'ing in Hopeh Province, Pu-hsien and Kai-p'ing in Liaotung; and Huai-lai in Chahar are famous apple-producing areas in China. People all over China are familiar with the so-called banana apple of Chefoo and the Kuo-kuang apple of the Northeast.

## 2. Pears

Pears (11) are widely planted in China. Noted types are as follows: shih-li produced in Lai-yang Hsien, Shantung Province, have white meat and are somewhat lustrous; En-li, produced in Tsingtao, also produced in T'ing Hsien in Hopeh, Peiping white pears; snow pears produced in Ch'ao-hsien Anhwei; Huang-chang-li produced in Chu-shi, Chekiang; late pears produced in Shang-jao, Kiangsi; and Fresh-water pears produced in Kwangtung. All of these types of pears are fine.

## 3. Oranges

Oranges [including lemons] are classified as follows: (1) Honey Mandarin Oranges, mostly produced in Kwangtung, Chekiang, Szechwan, and Taiwan. Those produced in Wen-chou, Chekiang, and Hsin-hui, Kwangtung, are especially famous. (2) Honey Oranges, the most popular oranges in China, are produced in Central and South China. Those produced in the following places enjoy the highest reputation: Wen-chou, Huang-yen and T'ien-tai-shan, in Chekiang; Nan-fang, Kiangsi; Foochow, Fukien; and Lung-tung-shan, Kiangsu. (3) Coolie Oranges are produced in Kwangtung, Chekiang, and Szechwan. Those produced in Hsin-hui-hsien, Kwangtung, are especially juicy and sweet. Those produced in Ch'ang-ching-hsien, Szechwan, are also known as the goose-egg orange. (4) The most famous and sweetest pumelos are produced in Kwangsi and are called shu-t'ien pumelo or sandy field pumelo. Those produced in Shang-chou, Fukien, and P'ing-yang, Chekiang, are also sweet and juicy. (5) Tangelos are produced in Chekiang, Kiangsi, Kwangtung, and Kwangsi with Foochow and Wen-chou producing the best. (6) Lemons are produced in South China.

The most important of the lesser fruits are: (1) Fai-sha loquats are produced in T'ang-ch'i, Chekiang, and Lung-tung-shan in Wu-hsien, Kiangsu. (2) Persimmons include the k'ai of Ch'ang-p'ing, Hopeh, the huo of Hangchow, and the Yellow-Chicken-Heart type of San-yuen, Shensi. (3) There are many kinds of peaches. The fo peach produced in Fai-sha, Shantung, is the most famous. Other kinds are the shu-hai of Luan-chou, Hopeh, Lung-hua near Shanghai, and Peng-hua, Chekiang; the liang-shan peach of Tsinan, and the p'an peach of Hangchow. (4) Grapes are produced in the following five regions: Ch'ang-li, Hopeh; Ch'ing-yuan, Shansi; Hsuan-hua, Chahar, Chefoo, Shantung; and Tsurfan, Sinkiang. (5) Dates are produced in I-wu, Chekiang, called ta-tsao, Lo-ling, Shantung, called hsu-hsin-tsao; Hsin-cheng, Honan, called hui-tsao; Ching-yang, Shensi, called shui-tsao; T'ai-ku, Shansi, called Ling-Ling-tsao; and Peiping, called na-ya-tsao. (6)荔枝 were once planted on a large scale in Kwangtung and Fukien.

## B. Vegetables

## 1. Leaf and Stem Crops

a. Pai-ts'ai, Chinese cabbage, is classified into many types, namely, ch'ang-pai-ts'ai (long Chinese cabbage), ch'ing-pai-ts'ai (green Chinese cabbage), hsiiao-pai-ts'ai (small Chinese cabbage), ai-pai-ts'ai (dwarf Chinese

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cabbage), and others. The most famous Chinese cabbage is called huang-ya-pai-ts'ai (yellow sprout Chinese cabbage) which is produced in Hpeh and Shantung. This kind of Chinese cabbage is also called round cabbage or big cabbage.

b. Chien-ts'ai, a coarse mustard-like cabbage, is mainly produced in Ling-nan, Kwangtung.

c. Hsueh-li-hung, another mustard-like vegetable, is also widely planted throughout the country. The best "hsueh-li-hung" is produced in Ning-po and Shao-hsing of Chekiang Province.

d. Cha-ts'ai, a kind of preserved mustard, is a world famous vegetable. A great deal of it is exported. It is raised all over China but the best varieties are from P'ei-ling, Chi'ang-shu, and Feng-tu, Szechwan.

e. Shun-ts'ai (*Brassica Purpurea*), an edible water plant, especially known in the Hsi Ho (West Lake) area of Hangchow is used for making soup.

f. Other popular vegetables in China are spinach, mustard, celery, kohlrabi and lettuce. These vegetables can be found almost everywhere in the country.

### 3. Root Crops

a. In-ko (radish) is sometimes called lai-fu. The radish is planted almost everywhere and is eaten by everyone in China. Among the root crops, the radish ranks highest in annual production. The Chinese radish is large, usually weighing about 3 catties. If carefully planted, each mou of land may produce 10,000 catties. Radishes produced in Europe and America cannot compare with the Chinese. The famous brands of radish are the water radish of Peiping, the green-skin radish of Tsingtao, the red radish of Nanking, the pink radish of Hangchow, and the evergreen radish of Ch'engtu.

b. Lotus seeds produced in Hunan, Kiangsu, and Chekiang are famous for their pleasant flavor.

c. Arrowroots produced in Hangchow and Soochow are pleasant and sweet.

d. Water chestnuts produced in the Nan Ho area of Chia-hsing, Chekiang, are well-known for their crispness and sweetness.

e. Yams produced in Ho-tse Hsien, Shantung, have a fine color and good flavor. They are edible even in raw form. They are also cheap. They are called "fruits for the masses."

### 3. Other Vegetable Crops

Peiping is famous for its eggplants, Sinkiang for its melons. Cucumbers produced in Nanking and Tsinan, pumpkins produced in Tsingtao and Yu-yao, Chekiang, winter melons (a large white-frosted kind for preserving) produced in Pao-tung and Tsinan, watermelons produced in Tachow, Shantung, maling melons produced in Chia-hsing, Chekiang, and sweet melons produced in I-tu, Shantung, are also famous.

Besides the above, there are onions, garlic, ginger, peppers, aromatic vegetables, saavi, and leeks. Other special products are lotus-root starch, mushrooms, edible fungus from trees, and chin-chen-ts'ai (dried flowers of a lily-like plant). Annually China exports a considerable amount of these products overseas.

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## VII. ANIMAL HUSBANDRY

A. Cattle

There are four kinds of cattle in China; yellow cattle (principal Chinese beef type), buffalos, wild yaks, and dairy cows. There are more yellow cattle than any other type in China. The estimated number being about 26 million head. China has more than 10 million head of buffaloes. Including the wild yaks and dairy cows, the total number of cattle is about 40 million, the fourth largest number in the world. In the past, a large number of yellow cattle was exported annually. Yellow cattle are found everywhere in the country, but Northeast China, Shantung, Honan, Hopeh, and Kwangsi have more of them than any other places. Those bred in Shantung are most famous for their beef qualities. Those bred in North China are more healthy, rangy, fast-walking, and hardworking, good for both draft and beef animals.

Buffalos are raised in the rice-growing areas of Central and South China. Szechwan, Kwangtung, Hunan, and Anhwei raise the largest numbers of buffalo.

Yaks are not so widely raised as the above-mentioned strains. They are found only on the steppes and plateaus of Tsinghai, Ningsia, Kansu, Szechwan, Sikkim, and Tibet. Male yaks are used as pack animals whereas the females are kept for milking.

Dairy cows in large cities are mostly of the Holstein strain. In the Hu-na League, Inner Mongolia, and in Harbin, Northeast China, there are a considerable number of milk cows of the Siberian strain. Cheese made in those areas is sold along the Chinese Changchun Railway. In Wenchow, Chekiang, people use buffalo's milk for dairy products.

B. Horses

The nation, as a whole, has approximately 10 million head of horses, mules, and donkeys. Of these, 5-6 million are horses, the sixth largest number in the world. Horses bred in North China belong to the Mongolian strain which is healthy and stocky. Chiang-chia-k'ou, Chahar, has the best horses of this strain. Horses in the Southwest belong to the Szechwan strain, which is small but nice-looking. Most of the Szechwan horses are bred in Sikkim. Horses raised in Kuldja, Sinkiang, and Hai-la-erh, Inner Mongolia, are of foreign strains.

C. Donkeys

Donkeys raised in North China and the Northwest are large, especially those raised in the central parts of Shensi and Hopeh, and the eastern part of Shantung. The donkeys raised in the Northeast are of medium size.

D. Mules

Mules are the ideal draft animal since horses are difficult to care for, cattle walk too slowly, and donkeys are too light for carrying heavy cargoes. People in North China purchase mares from Inner Mongolia (north of Kalgan), and breed them with local, large healthy donkeys.

The Mongolian camel is taller and heavier than the Chinese camel. The nation as a whole has from 400,000 to 500,000 head of camels. Annually, a considerable amount of camel's wool is exported from China.

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E. Sheep and Goats

Very few sheep and goats are raised in areas south of the Yangtze River except in Chekiang and Kiangsu. North of the Yangtze more sheep and goats are found. The principal sheep and goat producing districts are Sinkiang, Tsinghai, Tibet, Kansu, Suiyuan, Inner Mongolia, Ningsia, and Sikang. The nation, as a whole, has approximately 33 million sheep and 17 million goats. Chinese sheep may be classified into two large categories, namely, the Mongolian breed and the Tibetan breed. The fat sheep in Mongolia, the so-called Han in North China, the hu in Chekiang and Kiangsu, and the t'ung in Shensi belong to the Mongolian breed. The sheep in Sikang, Chinghai, Kansu, Szechwan, and Kweichow belong to the Tibetan breed. Generally, sheep of the Mongolian breed yield more wool. The nation's total wool output is approximately 66 million catties annually, 40 percent of which is exported.

F. Hogs

China has from 60-70 million head of hogs. They are raised throughout the country but the Yangtze River Valley is outstanding in the number of hogs. Szechwan, Hunan, Chekiang, and Kiangsu are famous hog raising districts. White hog bristles produced in Szechwan are world famous. Annually, China produces about 130,000 piculs of hog bristles. Bristles are one of the principal sources of China's foreign exchange.

G. Poultry

Poultry raising has become one of the subsidiary occupations of most Chinese farmers. The nation, as a whole, has approximately 400 million head of poultry. South China stands first in poultry raising but the Northeast has the largest number of geese. China's egg output is also high. The annual production is estimated at 10 billion eggs. About one sixth of the total are used in making frozen eggs, dried eggs, and egg powder. These products are exported overseas. A large amount of poultry feathers is exported annually.

## VIII. MARINE PRODUCTS

China's coast line is 8,640 kilometers long. Along the coast there are 3,338 large and small islands. Coastal fishing grounds cover 437,000 square nautical miles. In addition, there are numerous rivers and lakes. There are about 3 million fishermen in the country. Still others engage in fishing as a secondary occupation.

Under the reactionary regimes in the past, China produced only from 2-3 billion catties of aquatic products annually. More than 6 billion catties annually could be produced.

## IX. FORESTRY

There are no accurate figures on the size of China's forests. According to various estimates, China has 1,242,000,000 mou of forest area, 8.5 percent of the entire space of the nation's territory. Of this, 756 million mou have been surveyed. Taking the forests which have been actually surveyed as a basis, we may infer that China has a total timber reserve of 5,800,000,000 cubic meters. These figures represent only the large forests in the nation; the scattered small forests are not included.

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All lands with an inclination of 15 degrees should be assigned as potential forest areas to prevent erosion. Sandy lands which are not suitable for farming should be used in conserving water and assigned as forest areas. If the above policy is adopted, then we shall have 4,360,000,000 mou of potential forestation area. Thus the total forest area could include 30 percent of the entire territory of the nation. If we take effective measures in improving our forests, we shall be able to make some achievements within 10-20 years. Potential forest areas are found in almost every province. The provinces having more than 100 million mou each are all the provinces in the Northeast, and Sikang, Tibet, Tsinghai, Kansu, Ningxia, Suiyuan, Chahar, Yunnan, Kwachow, Hunan, Kwangsi, and Kwangtung.

#### A. Northeast

The six provinces in the Northeast are the most important forest areas in China since more than 50 percent of China's timber reserve is in these provinces. The principal forests are in the valleys of the Sungari, the Yalu, and the Tumen rivers, the Mu-tan Chiang, and the La-ling Ho. Forests on the Hsingan Mountains and areas along the Chinese Changchun Railway are equally important. Important timber markets are An-tung, Harbin, and Vladivostok.

#### B. Southwest

Southwest China, including the forests in Szechwan, Sikang, Yunnan, and Kwachow, is second only to the Northeast in importance. The forests in this region constitute one fourth of the nation's timber reserve. The principal forests are found in the valleys of the Min Chiang, the Ch'ing-i Chiang, the Ya-lung Chiang, the Chin-sha Chiang, the Lan-ts'ang Chiang, the Nu Chiang, the Wu Chiang, and the Ta-tu Ho. There are also large forests on the Ta-wei, Ta-liang, Hsiao-liang, and O-mei mountains. Timber trading markets are in Lo-shan, Chungking, and I-pin.

#### C. Northwest

Forests in the Northwest are found in the valleys of the T'ao Ho, the Pai-lung Chiang, the upper reaches of the Yellow River, and the T'ien Shan, Ch'ien-ling, and Ch'i-lien mountains. Since communication facilities are still not adequate in the Northwest, timber needed for developing that region must be obtained locally. The principal timber trading markets are in Urunchi, Lan-chou, Ningxia, T'ien-shui, and Sian.

The principal forests in East China are found in the valley of the Min Chiang in Fukien Province. These forests constitute nine tenths of the timber reserve in East China. Other forests are in the valleys of the Ting Chiang, the Ch'ien-t'ang Chiang, the Ou Chiang, and on Lao Shan and Miao Shan in Shantung Province. The principal timber markets are in Foochow, Nan-p'ing, Ch'ao-chou, Hangchow, and Lin-i. Forests in Taiwan cover 50 percent of the island's area, with a total timber reserve of more than 200 million cubic meters. The principal forest areas on that island are in Chu-shui-shan and in A-li Shan and Pa-hsien Shan.

#### D. Central-South China

The upper Hsiang Shui Valley in Hunan is the most important forest area in Central-South China. Forests in the Hsiang Shui area constitute eight tenths of the entire timber reserve in Central-South China. Forests are also found in the valleys of the Yuan Chiang, Kan Chiang, and on Sheng-nung-shia, Sung, Shih-wan-ta, Ta-ming, and W.-chih mountains (the last mentioned mountain is on Hainan Island). Timber produced in this region is marketed in Hankow and Heng-yang.

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E. North-China

Forests are most sparse in North China. There are only about 600,000 shih mou of forest areas, found on Ning-wu Shan and Fung Shan in Shansi Province.

More than 2,000 varieties of trees are found in China. The most important varieties are listed below with the principal area of their growth:

1. Larch, the principal type of tree in the Northeast.
2. Red pine (*Pinus koraiensis*), the most important type of tree in the Yalu River Valley.
3. Horse-tail pine (*Pinus thunbergii*), the most important kind of tree in the Southeast and in Central-South China. A great deal of turpentine from these pines is produced in Kwangtung, Chekiang, and Northeast China.
4. Common fir (*Cunninghamia sinensis*), found in abundance in South China.
5. Spruce trees, primarily found in the Northeast and in Szechwan. They are also found in Yunnan, Hupeh, and Shansi.
6. Cedar (or cypress), found mostly in Szechwan, Yunnan, Kweichow, Kwangsi, and Chekiang.
7. Round cedar, a native of the Northeast, spread all over the country.
8. The chestnut oak, found in North and Central China.
9. Chestnut trees, found almost all over China, are most commonly in Hopeh.
10. Walnuts, found chiefly in Hopeh, Ssantung, Shansi, and Shensi.
11. Willows, found all over the country.
12. Tung (*Aleurites cordata*), a plant native to China. The annual production of tung oil is more than 3 million piculs. Tung oil is the largest item of China's export goods. It is produced in all of the provinces south of the Yangtze River, with Szechwan and Hunan producing the most.
13. Tallow trees are found in the Yangtze River Valley and the areas south of the Yellow River. China annually produces 600,000 piculs of tallow seed oil, a great part of which is exported. Szechwan, Kweichow, Hupeh, Hunan, and Anhwei produce the largest amounts of tallow oil.
14. Yu-ch'a trees [a species of camellia], are found in the provinces south of the Yangtze River, with Kiangsi, Fukien, Kwangsi, and Hunan producing the most. Seeds of Yu-ch'a trees are used in making edible oil, as well as lamp fuel and candles. Annually, China produces one million piculs of Yu-ch'a seed oil.
15. Camphor trees are indigenous to the southern provinces, with Kiangsi, Fukien, Chekiang, Kwangtung, and Hainan Island producing the most. Both camphor wood and leaves may be used as materials in making camphor and camphor oil. China produces 70 percent of the world's camphor.
16. Lacquer trees are found in almost all of the provinces south of Hopeh, but large numbers of such trees are also found in Shensi, Hupeh, Szechwan, Kweichow, Anhwei, and Chekiang. These provinces also produce the best lacquer.

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17. Holly (*Ilex pedunculosa*) trees while usually planted around houses for decorative purposes are grown in Szechwan and Chekiang for the purpose of feeding the insect *Flata limbata* which produces white wax. This white wax is also a special product of China, suitable for making candles, salves, and pattern molds. China exports a considerable amount of this white wax annually.

18. Rubber trees are found on Hainan Island.

19. Nan-mu trees [a kind of cedar] are found in Szechwan, Hupeh, and Yunnan. Nan-mu lumber is thick and durable, particularly suitable for making furniture.

20. Lignalee trees are found in Kwangtung and on Hainan Island.

21. Bamboo grows in the provinces south of the Yellow River, particularly in Chekiang and Kwantung. Bamboo is used in building houses, fences, containers, and for poles, etc. Bamboo shoots are a delicious and inexpensive food. The best bamboo shoots are produced in Fu-yang and Chu-chi, Chekiang.

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